Report of the
Information Technology Management
Steering Committee

Agricultural Research Service
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Introduction

This is the report of the ARS Information Technology Management Steering Committee. The ITMSC was chartered by the ARS Administrator to assess how well ARS was managing its information technology resources and to take steps to improve those management practices and to meet Congressional and Departmental requirements. See attachment J for the steering committee charter and membership.

ARS is uniquely responsible for creating new knowledge and the data, information, and technology necessary for a sustainable and globally competitive American agriculture. The knowledge produced by ARS is a strategic national resource for American agriculture and the Nation. The ARS core business areas are:

- Research
- Business Operations
- Library and Information Services
- Information Dissemination and Public Awareness

Background

GAO Best Practices

In May 1994, the General Accounting Office published a report, *Improving Mission Performance Through Strategic Information Management and Technology*, on information technology management practices that led to performance improvements in some of the best private and public sector organizations. See attachment I for a list of these 11 best practices.

Clinger-Cohen Act

Congress incorporated GAO's best practices into the Information Technology Management Reform Act, or Clinger-Cohen Act, which went into effect August 8, 1996. Clinger-Cohen focused on results-based management of IT investments and required cabinet departments to establish a Chief Information Officer (CIO) to coordinate IT issues. It encouraged, but did not require, CIOs at the sub-cabinet level.

USDA CIO Requirements

USDA has required agencies to establish an Information Technology Investment Review Board to increase program manager involvement in IT decisionmaking and has also encouraged USDA agencies to establish their own CIOs.

ARS Information Technology Management Steering Committee

In April 1997, the Information Technology Management Steering Committee assessed ARS's management of information technology resources using a self-assessment tool based on GAO's best practices. The review found that ARS was relatively strong at strategic planning and obtaining customer input, but weak in terms of IT organization structure, management of IT projects as investments, and information architecture. Attachment K contains a summary of the self-assessment process and results.

Based on the self-assessment, the ITM Steering Committee recommended the establishment of three action teams. Ultimately, three more teams were added for a total of six. The teams were chartered in October 1997 (see attachment L for charters) and began work late that calendar year. The full text of the six team reports are included as attachments A through F.

Recommendations

The Information Technology Management Steering Committee endorses the six action team reports and supports implementation of all recommendations in those reports. However, certain recommendations are key to the success of this effort and the steering committee believes that these recommendations should receive priority attention. These key recommendations are:

IT Leadership and Direction

1. **Adopt and begin implementing the Information Technology Management Strategic Plan.** (Team 1, attachment A)

The Information Technology Management Strategic Plan provides a road map for improving use of information technology to deliver first-class science to ARS customers. This strategic plan is the umbrella plan that incorporates all the recommendations from the ITMSC action team reports. The steering committee recommends that this plan be adopted and that implementation begin under the auspices of the proposed Chief Information Officer and the transition team (see recommendation 3 below).

2.   **Adopt methods to ensure that the ARS mission drives its information systems and the deployment of information technology.** (Teams 1 and 3, attachments A and C)

The vision of the Information Technology Management Strategic Plan is that ARS information systems will be mission-driven, integrated, based on shared databases, and responsive to customer needs. Effective information systems must flow from mission requirements. To ensure that this happens on a regular basis, the ITMSC recommends adopting a set of structured analytical processes to identify the information needs of ARS customers (both internal and external), review existing core business processes, and determine information systems requirements.

3.   **Establish a Chief Information Officer for ARS.** (Teams 1, 2, and 3, attachments A, B, and C)

The steering committee recommends creation of a CIO position, with an effective organizational framework, as critical for building an ARS-wide information management capability responsive to customer needs. The CIO should report to the Administrator, set ARS-wide IT policy, serve as the Year 2000 Executive Sponsor, and focus attention on using information technology to deliver science to ARS customers. Candidates for the CIO position should have demonstrated leadership in science and technology as well as expertise in information technology.

Attachment G contains a description of the proposed duties and reporting relationships of the CIO. Further work needs to be done to define the role and authority of the CIO, including appropriate staffing and a source of funding. The ITMSC recommends establishing a transition team to complete this definition and to provide interim implementation guidance while action is taken to recruit and fill the CIO position and associated staff. Attachment H contains the proposed membership and duties of this transition team.

4.   **Establish an ARS Information Technology Investment Review Board (ITIRB).**
     (Teams 1, 2, and 3, attachments A ,B, and C)

The USDA Chief Information Officer has required USDA agencies to establish an ITIRB to oversee IT investments. The ARS ITIRB will approve new information technology investments and evaluate existing projects and operational systems. It will focus on creating an ARS Information Technology investment portfolio that supports the Agency mission and program delivery processes. The proposed ITIRB will be chaired by the Associate Administrator and include the Deputy Administrators of NPS and AFM; the Director, Budget and Program Management Staff; the NAL Director; one Area Director selected by the Administrator; and the Chief Information Officer (as nonvoting Executive Secretary). The proposed charter, board membership, and operating policies and procedures are described in attachment B.

Research Support

5. **Develop a process by which decision support systems and other information-based products are developed, placed, and supported in an information system.** (Team 1, attachment A)

There is increasing demand to develop and provide ongoing support for decision-support systems and other information-based products that meet the needs of ARS customers. Currently, there are no standard processes, platforms, and data base models for developing such information products and no procedures for continued maintenance of those products once developed. The ITMSC recommends establishment of rapid prototype pilot project(s), such as the Rangeland Health Assessment Expert System, to provide a way for defining such standard approaches. The pilot project(s) would be the basis to develop and maintain future expert systems and decision tools that enhance technology transfer of ARS research results to users and the public. At the same time, the steering committee recommends appointment of a small team of field and NPS scientists, NAL, top-level management, and the Office of Technology Transfer (OTT) to develop a policy statement that will encourage identification of customer needs for such systems, support their development, and begin the process of defining standards and procedures for increased sharing and utilization of user models, expert systems, decision tools, and data bases.

6. **Procure or develop a program management system to replace the current RMIS and other systems.** (Team 4, attachment D)

Action Team #4 has completed a model of the program and project management processes used in ARS and has developed the basic requirements for designing new systems to support these processes. These new systems would replace RMIS, ARMPS, the Budget Allocation System, and others. The recommended next steps would be to:

*   Implement new processes developed.

*   Complete process improvement projects and models for the Peer Review Process, National Program Evaluation and Modification, Research Agreements Planning and Management, and National Program Team formation and make-up.

*   Survey commercial or other available software to see if there is any that can be adopted or modified for use in ARS. If no such system exists, we would proceed with the systems development process.

Estimated first year costs include $143,000 in contracts and use of in-house staff with salaries totaling $139,000. This covers the process-improvement and model activities, the commercial

survey, staff training, and the planning and investment analysis. Development costs in year 2 amount to $150,000 in contract costs plus use of in-house staff with salaries totaling over $480,000.

7.   Enhance access to scientific information for ARS researchers. (Team 6, attachment F)

Through the CALS service, NAL currently provides scientific information to ARS researchers using Knight Ridder's Dialog Alerts service. This contract service costs about $800,000 per year. Individual ARS locations spend another $160,000 per year to subscribe to the Current Contents Connect data base service. The ITMSC recommends replacing the Knight Ridder service with the Current Contents on CD database and also providing a central license for all ARS scientists to use Current Contents Connect for direct searches. Implementing this recommendation will save a significant portion of the existing costs.

External Communications

8.   Improve the utility of ARS websites and other electronic media to provide broader distribution and easier access to agricultural information. (Team 1, attachment A)

The ITMSC recommends improving the utility of ARS websites through more coordinated access to the agricultural information that is available on them. The ARS webmaster, working with the ARS Web Board, should issue policies, procedures, and guidelines for development, maintenance, and coordination of ARS websites. This would include development of indexes and linkages to ARS and other agriculturally related information resources. Transferring the ARS webmaster function to the proposed Chief Information Officer (see recommendation 3) will help to implement this recommendation.

9.   Develop an information/communication strategy. (Teams 1 and 5, attachments A and E)

Implement an integrated, Internet-based communications process for improving access to information on ARS's National Programs, research activities, and accomplishments by internal and external users and customers. This process is to include descriptions of the national program structure, lists of hot topics, expert contacts, a section with responses to frequently asked questions, and easy electronic update capabilities. As an initial step, a structured analysis of existing agency information management organizations, methods, and techniques is recommended to determine what now works well and what activities/resources need to be redirected to accomplish this goal.

Infrastructure To Sustain Improvements

10. **Develop integrated information systems to support core business areas.** (Teams 1 and 4, attachments A and D)

The work done to define requirements for a new program management system serves as the foundation for future integrated systems development in ARS. These requirements were developed using structured analytical techniques and depend on use of shared data bases and common computing platforms. Use of these techniques and approaches corresponds with objectives in the Information Technology Management Strategic Plan. This information systems development method needs to be coupled with efforts to establish ARS-wide connectivity via the Internet and the USDA Telecommunications Enterprise Network (TEN) and provide adequate levels of IT security and protection.

11. **Ensure that managers, users, and technical staff acquire and maintain information technology competencies.** (Teams 1 and 3, attachments A and C)

Effective management and use of information technology resources requires that ARS staff have the requisite skills. The skills required will differ for managers, scientists, support staff, and technical computer staff. The ITMSC recommends that ARS assess the capabilities of existing staff in different categories, define benchmarks that employees in those categories should meet, and then develop and implement training plans for each user group.

12. **Preserve our agricultural heritage for future generations by implementing a process for preservation of and access to USDA documents in electronic form.** (Team 1, attachment A)

With the continued expansion in use of electronic documents to deliver information to the agricultural community, the risk grows that we will lose access to certain documents forever. The ITMSC recommends that ARS develop and implement appropriate standards, policies, and procedures to ensure long-term preservation of agricultural information published in electronic form and that such information is continuously accessible into the future.